



VIRTUAL TEAMING



Presentation Team

- Matt Harvey
- Bob Novak
- Arvid Thomsen

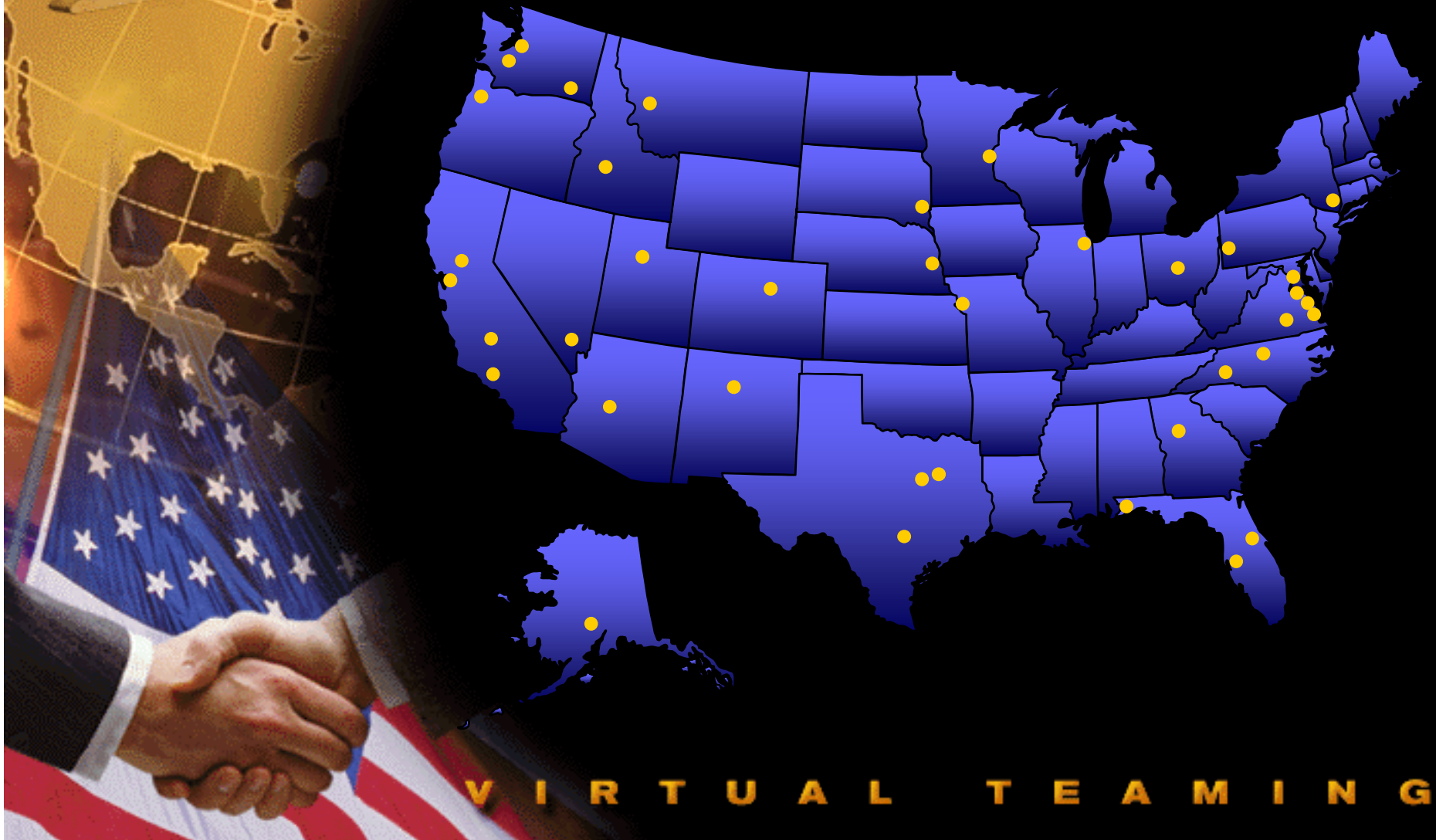
V I R T U A L T E A M I N G



A Little About HDR

V I R T U A L T E A M I N G

Office Locations



The background of the slide features a collage of images. On the left, there is a large, stylized 'HDR' logo in a metallic, 3D font. Below the logo, there is a map of the United States with a grid overlay. At the bottom left, there is a close-up of two hands shaking in a firm grip, with an American flag visible in the background. The title 'HDR Today' is written in a bold, yellow, serif font, positioned to the right of the logo and above a horizontal maroon line.

HDR Today

- 1917-1997
- Rated 14th in Pure Design
- 1,800+ Employees
- 50+ Disciplines
- Hospital Design to
Environmental Compliance

V I R T U A L T E A M I N G

HDR Services

Transportation



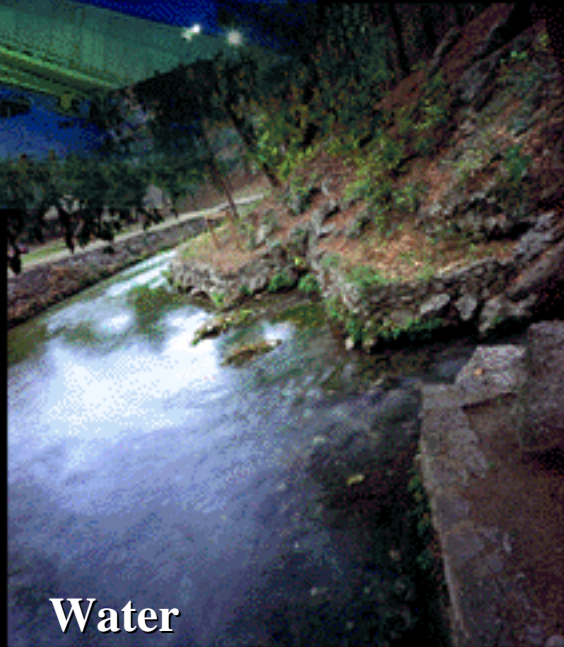
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HDR Services

Transportation



Water



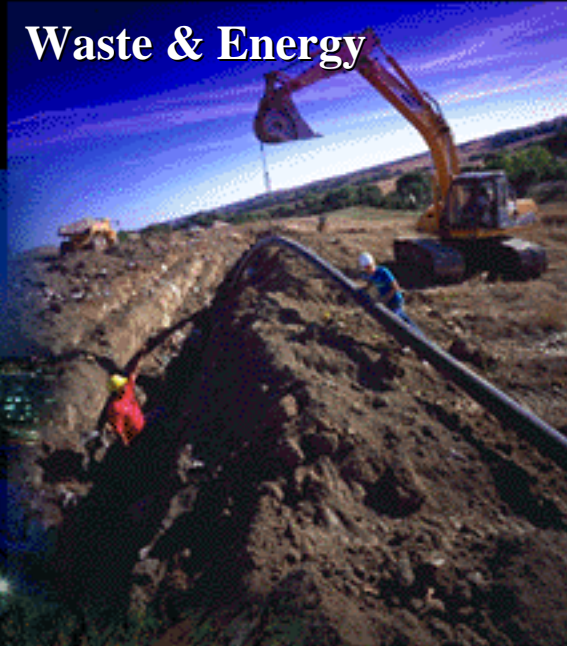
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HDR Services

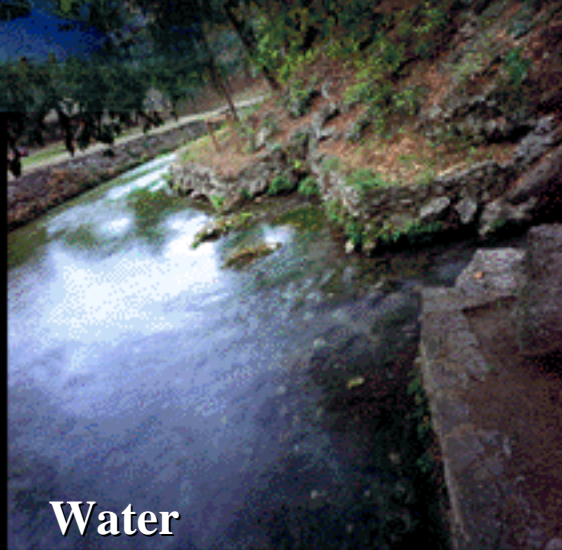
Transportation



Waste & Energy



Water



V I R T U A L T E A M I N G

HDR Services

Transportation



Waste & Energy



Health Care



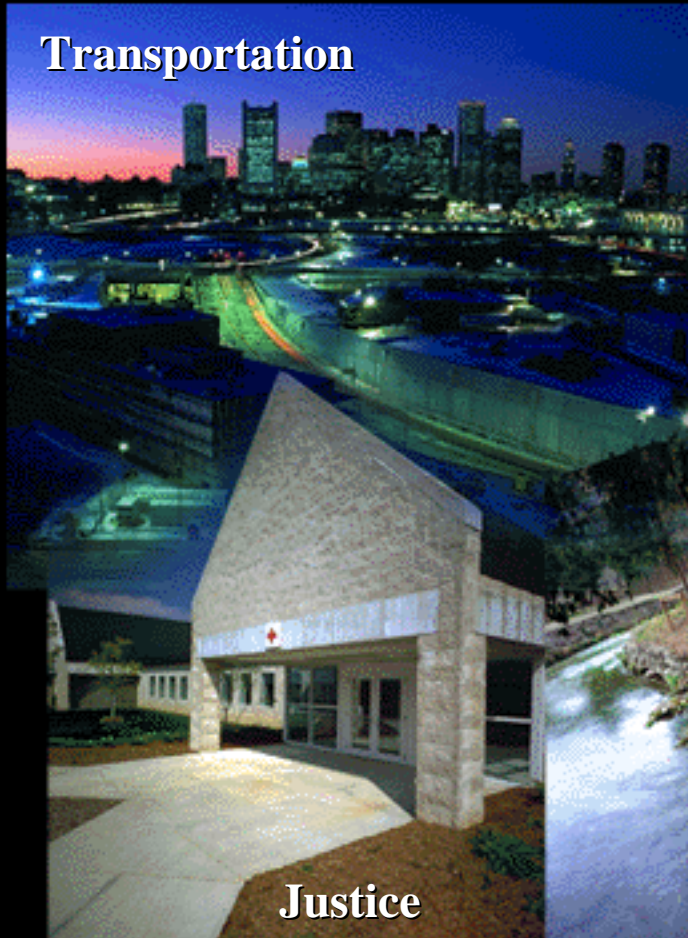
Water



V I R T U A L T E A M I N G

HDR Services

Transportation



Justice

Water

Waste & Energy



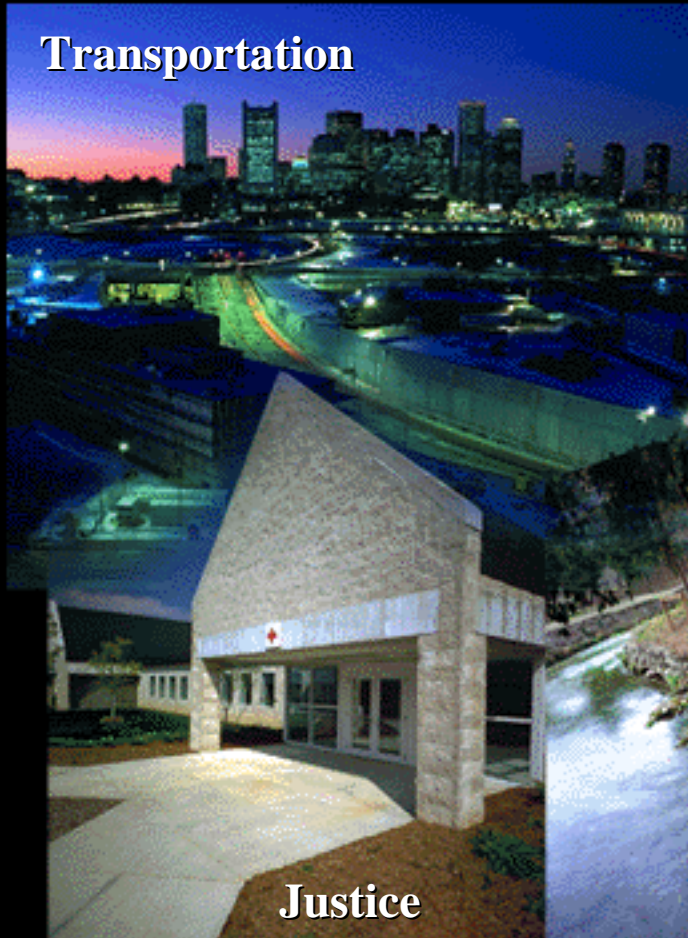
Health Care



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HDR Services

Transportation



Justice

Waste & Energy



Health Care

Science & Industry



Water



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Bob Novak

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Virtual Centers of Excellence

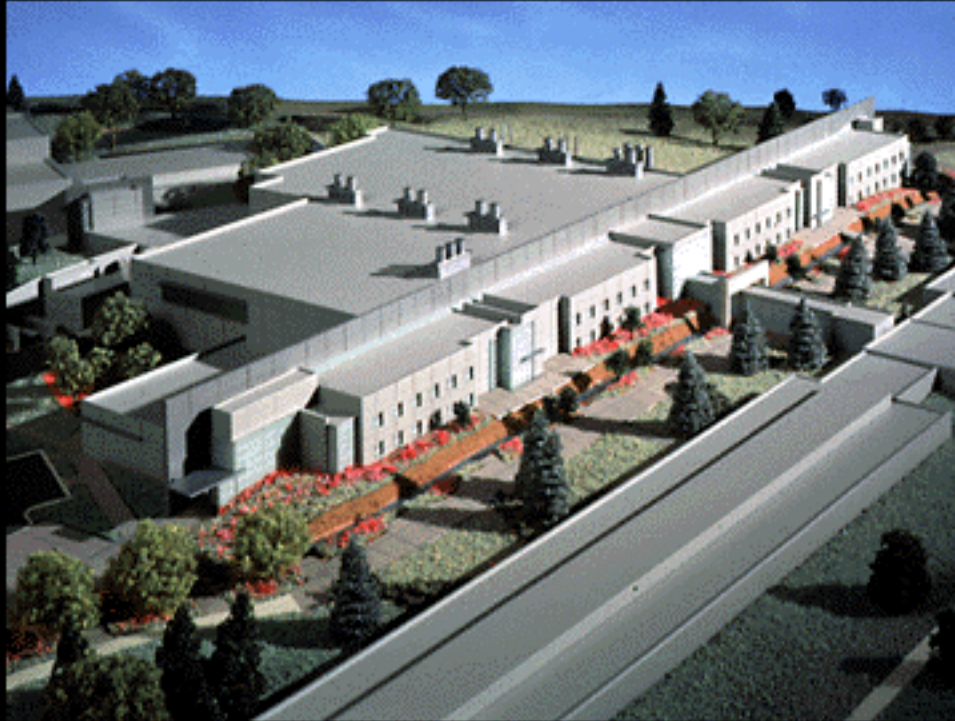
Case Study

**National Institute of Standards
and Technology
Advanced Technology
Laboratories**

*Gaithersburg, Maryland
Boulder, Colorado*

V I R T U A L T E A M I N G

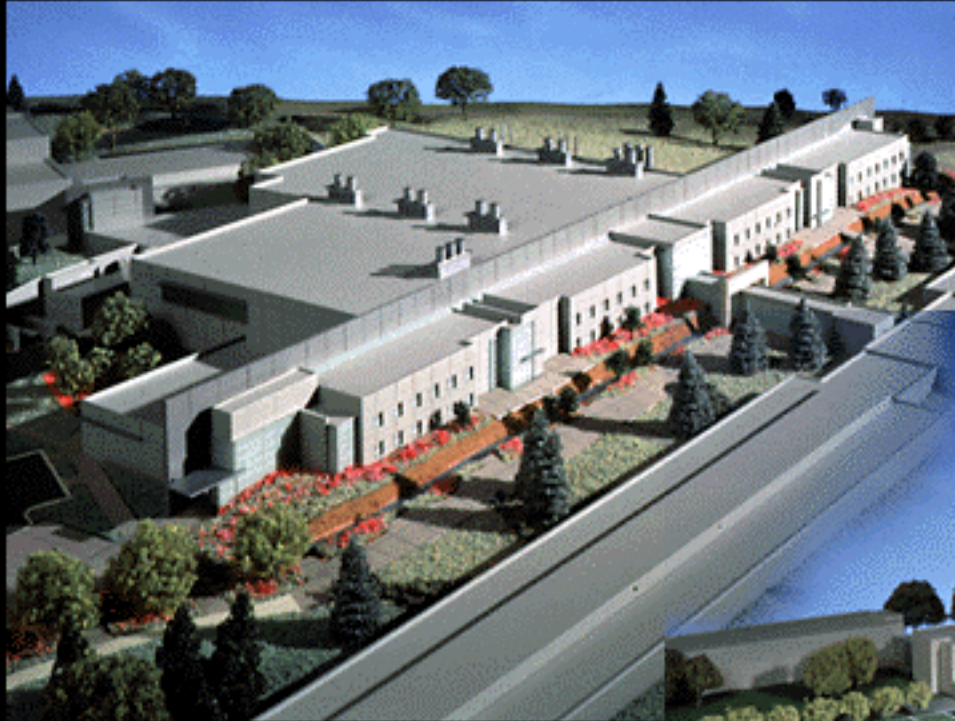
The Sites



NIST Gaithersburg

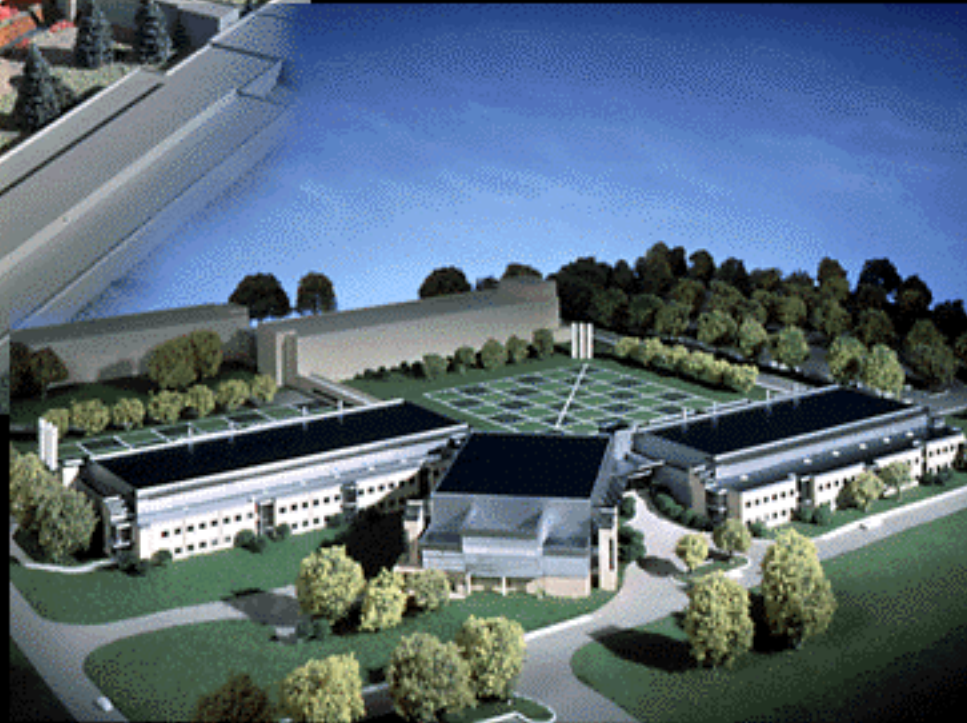
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The Sites



NIST Boulder

NIST Gaithersburg



V I R T U A L T E A M I N G



The Challenge

- To create the most environmentally stable laboratories in the world.
- Temperature Control to ± 0.01 degree Celsius
- Vibration Control to Velocity Amplitude of 3 Micrometers/Second at Frequencies < 4 Hz
- High Quality Clean Power
- Concurrent Stability

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The Client

- 16 Owner Groups
- 10 Consulting Firms to Construction Manager
- 7 Federal Agencies
- 4 Utility Companies
- 3 State Agencies
- 2 Owner Contractors
- 1 Construction Manager

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The Design Team

- HDR Omaha
- HDR Alexandria
- HDR Minneapolis
- HDR Dallas
- HDR Denver
- 11 Consulting Firms

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The 'Real' Challenge

*To effectively focus technical resources
to create the most environmentally
stable laboratories in the world.*

- Team of 'Experts'
- Multiple Offices
- Collaborative Environment
- Multi-Headed Client

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Virtual Centers of Excellence

- HDR Omaha
- HDR Alexandria

V I R T U A L T E A M I N G

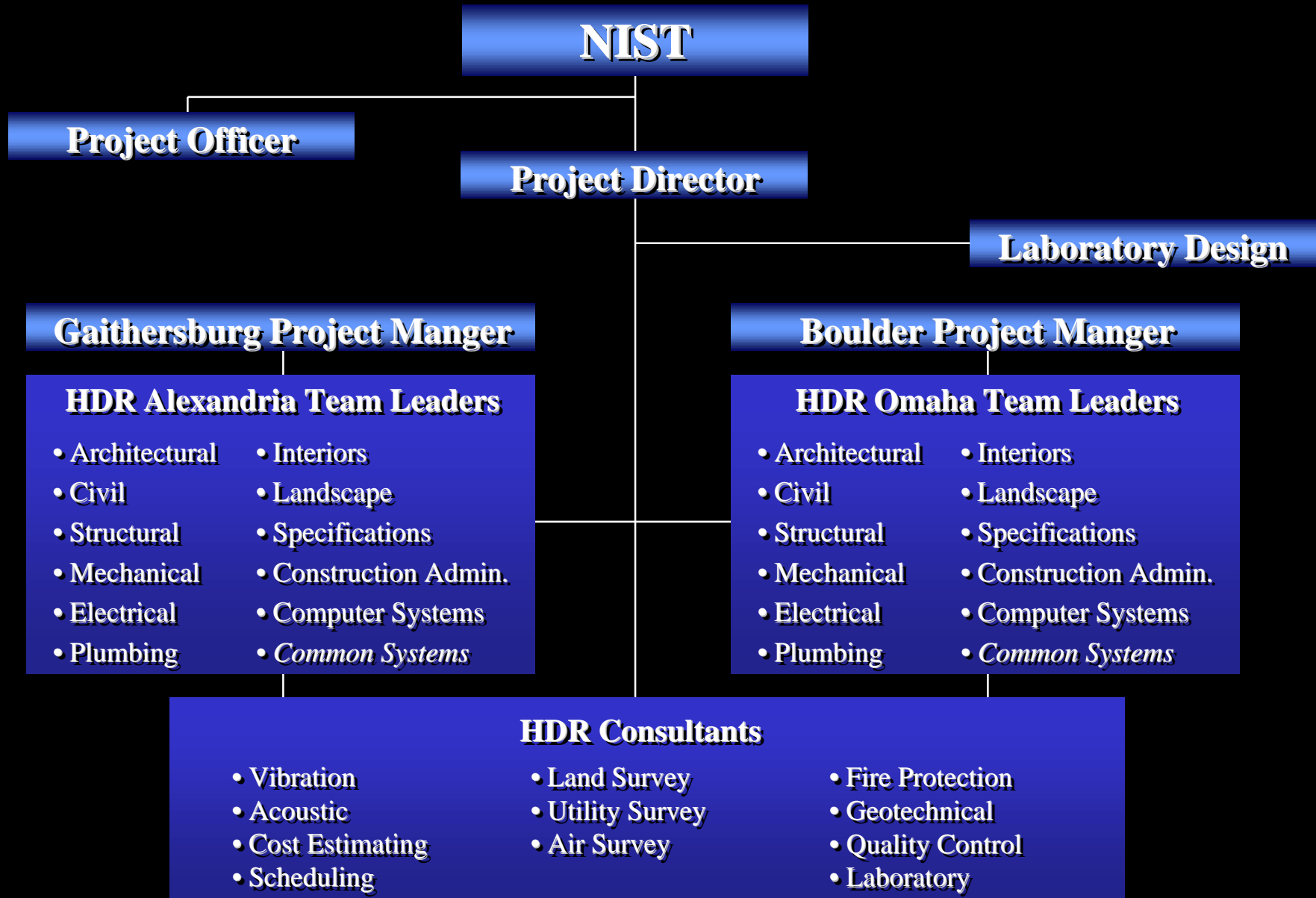


Teamwork

“Teamwork is the ability to work together toward a common vision. The ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results.”

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The Team Organization





Computer Systems

- Bulletin Board
- Shared Drawings
- E-mail

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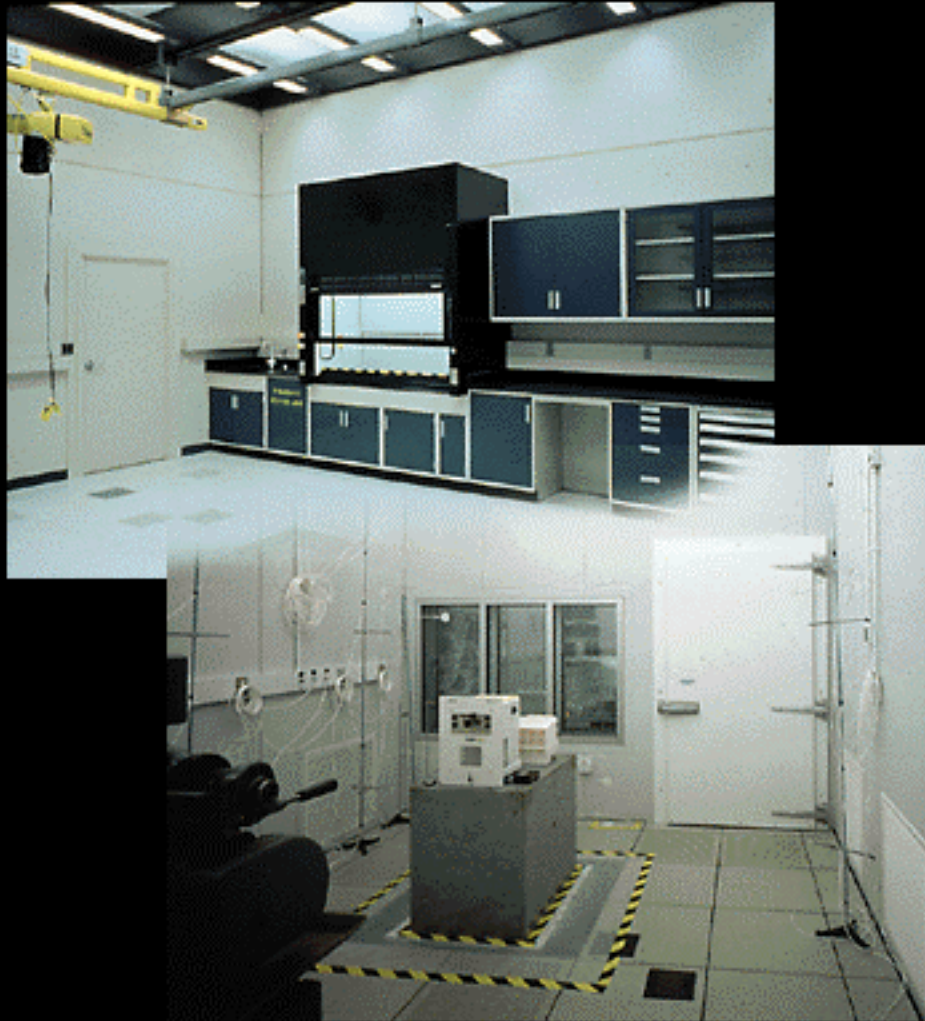
Mock-ups



Instrument Laboratory

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Mock-ups



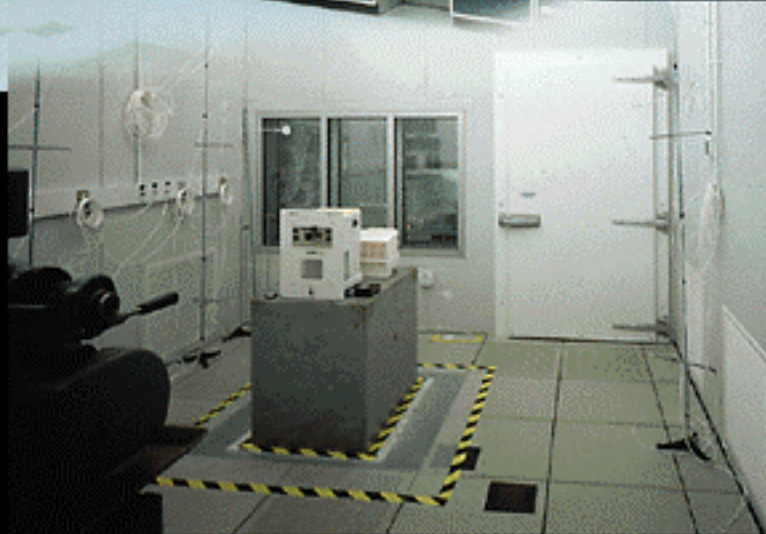
**Temperature Control
Research Project**

V I R T U A L T E A M I N G

Mock-ups

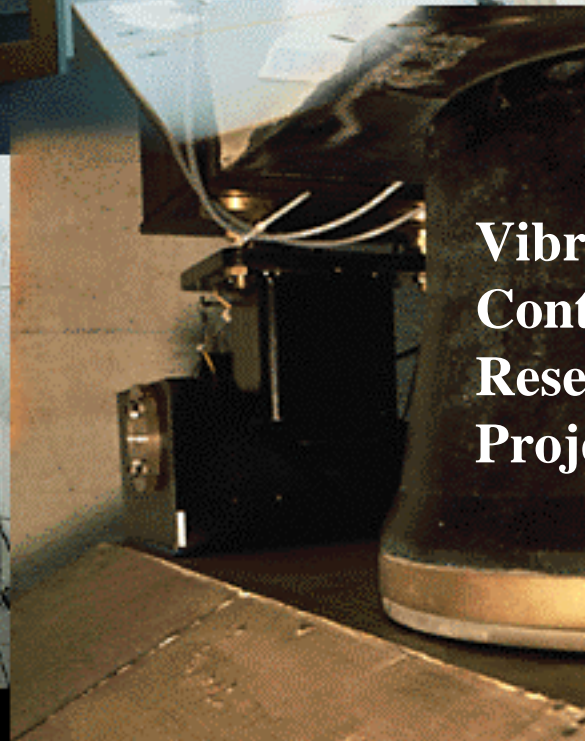


Researcher Office



V I R T U A L T E A M I N G

Mock-ups



**Vibration
Control
Research
Project**

V I R T U A L T E A M I N G

Design Review Comment System

Record No: 8377

Date of: Docmt: 11/27/95

A/E Notif: 01/22/96

Programmatic Area: G'BURG-ATL

Docmt Type: D: DRAWING

Doc. No.: EQ1-17

SubNo.:

Discipline: ELECT

Reviewer: ENGLISH: MARK (301) 975-6923

Org/Agency: NIST

DESIGN REVIEW COMMENT

DESIGN COMMENT/QUESTION:

THE PASSIVE INFRARED SENSORS FOR IW4042 MAY PICK PEOPLE IN THE CORRIDOR.

RECOMMENDED ACTION OF A/E:

USE DIRECTIONAL SENSORS.

ARCHITECT/ENGINEER RESPONSE

COMMENT STATUS:

A/E REP: BECHTOL, DAVE

A/E ACKNOWLEDGED THE VALIDITY OF THIS COMMENT ON 03/22/96

PROPOSED RESOLUTION/ANSWER:

DIRECTIONAL SENSORS HAVE BEEN INCORPORATED INTO CONTRACT DOCUMENTS.



Quality Control Plan

“Quality is a continuous process, not an appliqué attached to the project at the end of each design phase.”

- Technical
- Constructability
- Common System
- Specification/Drawing Coordination
- Interdisciplinary Coordination
- Contract Compliance

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Formula for Success

10. Clearly define and redefine your mission
9. Assign strong compatible leadership
8. Don't let boundaries (profit, egos, rivalry, etc.) prevent you from doing your best
7. Think of other offices as customers not competition
6. People are important to teams because of talents not titles

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Formula for Success

5. Maintain team continuity to preserve intellectual knowledge base
4. Confirm computer infrastructure is capable of supporting tasks
3. Avoid forced marriages between consulting firms
2. Be aware of parallel schedules when sharing work between offices
1. Work 50% from fear and 50% from desire to succeed

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*“The future belongs to
the integrator.”*

V I R T U A L T E A M I N G



Arvid Thomsen

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Legacy West Davis Highway EIS & Design-Build Procurement

Salt Lake City, Utah

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Legacy Highway





Schedule

- Administrative Draft EIS 10 Months
- Public Draft EIS 12 Months
- Final EIS 16 Months
- Federal Decisions 18 Months
- Design-Build Award 18 Months

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Situation

- EIS \$10 Million
- Design-Build \$7 Million
- Staff 4

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Needs

- Transportation Planners
- Traffic Engineers
- Roadway Designers
- CADD
- GIS
- Economists
- Hydrologists
- Hydraulic Engineers
- Technical Writers
- Public Involvement Specialists
- Agency Coordination Specialists
- Environmental Engineers
- Geotechnical Engineers
- Structural Engineers
- Geohydrologists
- Aquatic Biologists
- Terrestrial Biologists
- Historians
- Archeologists
- Wetlands Specialists
- Right-of-Way Specialists
- Permitting Specialists

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Team

- Local PM (GS 11 Level) - Business (Set-up assistance from 2 other offices)
- National Director to Run the Project (SES Level)
- Over 50 HDR Professionals in all Disciplines from 13 Offices
- Subconsultant Assistance (1/3):
 - History
 - Archeology
 - Plants
 - Geotechnical Fieldwork
 - Wildlife
 - Surveying
 - Mapping

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Problems

- Travel Cost
- Travel Time
- Team Cohesion
- “Home” Projects Get Higher Priority
- Uncertain Capabilities
- Uncertain Individual Commitment
(out of sight, out of mind)
- Uncertain Project Commitment
- Short Lead Times

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Solutions

- Strong Leadership
- Well Organized / Detailed Schedules / Clear Expectations
- Strong Task Leaders (Subteams):
 - Roadway design
 - Cultural resources
 - Economics
 - Wetlands
 - Geotechnical
 - Document preparation
- Electronic Communications
- WEB
- Hound and Pound

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Challenges

- Work Sharing is an Unnatural Act
- Most Reward Systems Discourage Work Sharing
- Boundaries Discourage Work Sharing
- Work Sharing Disperses Responsibility
- What Gets Watched Gets Done
- Centers of Responsibility (Excellence) Should Develop by Default

V I R T U A L T E A M I N G



**What Does
Success
Look Like?**